MMSEC-2

Sl.No. :

Total No. of Pages : 2

Fourth Semester M.Sc. Degree Examination, May - 2026
(SLM Scheme) (CBCS)
MATHEMATICS
Algorithms and Computations

Time : 1½ Hour **Max. Marks : 40**

Instruction : Answer all the Sections.

SECTION - A

I. Answer any Five questions : **[5 × 2 = 10]**

Q1) Write a flow chart to check whether the given number is positive or negative.

Q2) Mention types of Computer Languages.

Q3) Explain row operation of a system of linear equations.

Q4) Explain the Gauss - Seidel method.

Q5) Define the following

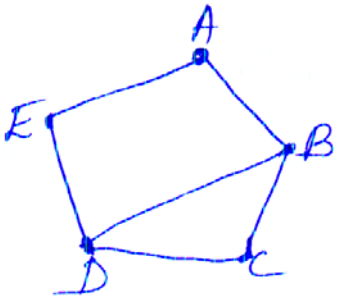
i) Trivial graph

ii) Undirected graph

iii) Connected graph

iv) Degree of a vertex

Q6) Obtain all the spanning trees for the given graph



Q7) Write the applications of NP-Hard problems.

SECTION - B

II. Answer any Four questions. **[4 × 5 = 20]**

Q8) Explain briefly on categories of computers.

Q9) Write a brief note on Translator.

Q10) Solve the following systems by using Gauss - Elimination method :

$x + 2y + z = 3$

$2x + 3y + 3z = 10$

$3x - y + 2z = 13$

Q11) Evaluate $y = e^{2x}$ for $y = e^{2x}$ for $x = 0.05$ using the following table [By using Newton's forward interpolation formula].

x	0.00	0.10	0.20	0.30	0.40
$y = e^{2x}$	1.00	1.2214	1.4918	1.8221	2.255

Q12) Explain briefly on the Breadth first search (BFS) technique.

Q13) Write the advantages and disadvantages of Divide and Conquer method.

SECTION - C

III. Answer any One question : **[1 × 10 = 10]**

Q14) Write the block diagram of a computer. Briefly explain the functionalities of each unit of computer.

Q15) Illustrate prim's Algorithm to find minimum spanning tree. Using a suitable example.

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